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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,547	06/10/2005	Natalie Speciale	47966.12.1	1755

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INTELLECTUAL PROPERTY GROUP
FREDRIKSON & BYRON, P.A.
200 SOUTH SIXTH STREET
SUITE 4000
MINNEAPOLIS, MN 55402

EXAMINER	
MACARTHUR, SYLVIA	
ART UNIT	PAPER NUMBER
1763	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/538,547	SPECIALE ET AL.	
	Examiner	Art Unit	
	Sylvia R. MacArthur	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-27 and 31-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-27 and 31-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 June 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 21-27 and 31-40 have been considered but are moot in view of the new ground(s) of rejection. Applicant's amendment to claim 21 necessitated the introduction of the prior art to Dunham (US 5,106,204) wherein the tapering of the gas channels are taught as a way to control the flow cross sectional area and thus the flow rates..

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of channels has a depth

that gradually reduces along its extent must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 21, 23,24, 31-33, and 35-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aschner et al (US 6,006,226) in view of Dunham (US 5,106,204).

Re claim 21: Aschner et al teaches an RTP system with gas driven rotating substrate comprising a stationary base element (fixed base) and a moveable support (rotating wafer holder), the support is rotatable above the element about a stationary axis as is defined between the element and the support, at least one duct is provided for the admission of at least one gas-flow to the chamber in order to raise the support, see Fig.4, 5, and 7.

Aschner et al teaches a plurality of channels, but fails to teach that each of the channels has a depth that gradually reduces along its extent.

Dunham teaches a high unit load gas bearing comprising a bearing base 42 with channels 32 have a depth that is reduced along the extent of the clearing space 37, see Fig. 4. Dunham recites in the abstract the motivation to vary the depth of the channels controls the flow cross sectional area. Furthermore, Dunham et al teaches that controlling the cross sectional area expansion within the gas bearing allows for a pressure differential along the flow path which will enhance gas flow. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the channels of Aschner to have a depth that gradually reduce along its extent.

Re claims 23 and24: The gas outlets are illustrated in Fig. 13a and 14.

Re claims 28 and 29: The channels are illustrated in Figs. 4,5, and 7

Regarding claims 31-33: See Fig. 4,5, and 7

Re claim 35: A pin/hole arrangement is illustrated in Figs. 4,5, and 7 and discussed in Fig. 4 lines 20-24.

Re claim 36: See claims 4,5, and 7.

Re claims 37-40: These claims are matters of an intended use and do not provide further structural limitation and thus the apparatus of Aschner is inherently capable of this intended use..

6. Claims 21, 22, 25, 27-29, and 32-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Burk, Jr.

Re claim 21: Burk, Jr. teaches a susceptor wherein gas paasageways 74 and 76 cause the wafer holders 64 to levitate and rotate above stationary element 60. Burk, Jr. et al teaches a plurality of channels 100, but fails to teach that each of the channels has a depth that gradually reduces along its extent.

Dunham teaches a high unit load gas bearing comprising a bearing base 42 with channels 32 have a depth that is reduced along the extent of the clearing space 37, see Fig. 4. Dunham recites in the abstract the motivation to vary the depth of the channels controls the flow cross sectional area. Furthermore, Dunham et al teaches that controlling the cross sectional area expansion within the gas bearing allows for a pressure differential along the flow path which will enhance gas flow. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the channels of Burk. Jr. to have a depth that gradually reduce along its extent.

Re claim 22: The individual chambers are closed whether the holder is in motion are stationary, see Figs. 7, 7A, and 7B.

Re claims 25 and 27: The duct outlet 76 is parallel to the axis of rotation.

Re claim 28: See col. 4 lines 10-26.

Re claim 29: Elements 74 and 76 comprise a plurality of channels.

Re claims 32, 33: Fig.3 illustrates that eh chamber and channels are formed entirely in the element.

Re claim 34: Figs. 3/5 teaches a circular recess.

Re claim 35: Central post 78 is a pin and the underlying hole anticipate a pin/hole arrangement, see col. 3 lines 27-34.

Re claim 36: The system is symmetrical according to the Figures.

Re claims 37-40: These claims are matters of an intended use and do not provide further structural limitation and thus the apparatus of Burk, Jr is inherently capable of this intended use..

Regarding claims 41 and 42: See Fig. 4 of Dunham as it illustrates the maximum and minimum depths as recited.

7. Claims 21, 22, 25, 27, 28, 31-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Paisley et al (US 2002/0090454).

Re claim 21: Paisley et al teaches a gas driven rotation apparatus wherein a holder 130 is rotated about a pin or spindle 140 while 150 is a stationary base element. According to [0046] the platter is lifted.

Paisley et al teaches a plurality of channels 168, but fails to teach that each of the channels has a depth that gradually reduces along its extent.

Dunham teaches a high unit load gas bearing comprising a bearing base 42 with channels 32 have a depth that is reduced along the extent of the clearing space 37, see Fig. 4. Dunham recites in the abstract the motivation to vary the depth of the channels controls the flow cross sectional area. Furthermore, Dunham et al teaches that controlling the cross sectional area expansion within the gas bearing allows for a pressure differential along the flow path which will

enhance gas flow. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the channels of Paisley et al to have a depth that gradually reduce along its extent.

Re claim 22: The chamber of Paisley et al is closed when the support is stationary or in motion, see Fig. 8 and 9.

Re claims 25, 27, 28: Fig. 9 illustrates an outlet 170 is parallel to axis of rotation of the support.

Re claim 26: Paisley et al teaches an outlet opening 174. Paisley et al fails to teach a plurality of gas outlets. However, the duplication of parts was held to have been obvious according to In re Harza, 274 F. 2d 669, 124 USPQ 378 (CCPA 1960). The motivation to provide a plurality of outlets is that the rate of outflow is increased with more outlet openings. Thus, it would have been obvious for one of ordinary skill in the art to provide a plurality of gas outlets to levitate and rotate the wafer.

Re claims 31-33: Fig. 6 and 7 illustrates that the chamber has a cylindrical shape and are substantially straight and tangential to the profile of the chamber. The chamber is formed entirely in the element and the channel is formed in the element.

Re claim 34: A circular recess is illustrated in Fig. 7.

Re claim 35: The pin/hole pair is illustrated in Fig. 1 where 140 is the pin that fits into 150 and spindle recess 133.

Re claim 36: See the figures.

Re claims 37-40: These claims are matters of an intended use and do not provide further structural limitation and thus the apparatus of Paisley, et al is inherently capable of this intended use.

Regarding claims 41 and 42: See Fig. 4 of Dunham as it illustrates the maximum and minimum depths as recited.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the hours of 8:30 a.m. and 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sylvia R MacArthur
Patent Examiner
Art Unit 1763

January 17, 2007